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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,842	09/13/2006	Koji Masaki	Q96962	1122

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EXAMINER	
KRYLOVA, IRINA	
ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
06/07/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/598,842	MASAKI, KOJI	
	Examiner	Art Unit	
	Irina Krylova	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed by Applicant on March 18, 2010 has been considered. The amendments to claims 1 and 5 are acknowledged. Specifically, claim 1 has been amended to include a limitation of the rubber component (A) containing a styrene-butadiene copolymer (C) having a weight average molecular weight of not less than 300,000. This limitation was partially taken from original claim 3. In light of Applicant's amendment the rejections on the ground of nonstatutory obviousness-type double patenting over copending Application No.11/908,462 (published US 2009/0054549) and copending Application No.11/817,573 (published US 2008/0289740) are withdrawn. All other rejections are maintained. The following action is made final.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-12, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039).

The rejection is set forth on pages 4-7 of an Office Action mailed on December 18, 2009 and is incorporated here by reference.

3. Claims 3-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039) in view of **Sasaka et al** (US 6,376,593).

The rejection is set forth on pages 7-8 of an Office Action mailed on December 18, 2009 and is incorporated here by reference.

4. Claims 1-11, 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744).

The rejection is set forth on pages 8-10 of an Office Action mailed on December 18, 2009 and is incorporated here by reference.

5. Claims 4-12 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744) in view of **Yokoyama et al** (US 5,959,039).

The rejection is set forth on pages 10-11 of an Office Action mailed on December 18, 2009 and is incorporated here by reference.

Response to Arguments

6. Applicant's arguments filed on March 18, 2010 have been fully considered. It is noted that in light of Applicant's amendment, the rejections on the ground of nonstatutory obviousness-type double patenting over copending Application No.11/908,462 (published US 2009/0054549) and copending Application No.11/817,573 (published US 2008/0289740) are withdrawn, thus rendering Applicant's arguments moot.

7. Regarding the rejection of claims 1-12, 15-16 under 35 U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039), Applicant argues that:
a) **Yokoyama et al** fails to disclose a low-molecular weight polymer having a weight average molecular weight of more than 50,000 but not more than 300,000 comprising a vinyl bond content in diene portion of 10-80%mass and 5-80%mass of aromatic vinyl compound;
b) Examples E6 and C2 of **Yokoyama et al** disclose polymers having Mw of $60x10^3$ and $90x10^3$, respectively, but have bound styrene content of 0%, i.e. are polybutadienes.

8. Examiner disagrees.
1) **Yokoyama et al** discloses a rubber composition and a tire comprising the composition, wherein the composition comprises:
A) 100 pbw of a high molecular weight polymer and B) 30-120 pbw (col. 2, lines 25-28) of a low molecular weight polymer component, wherein the low molecular weight

polymer containing bound styrene in an amount not greater than 30%wt, i.e. is a styrene-butadiene copolymer or a polybutadiene, and has a weight average molecular weight of 2,000 to 80,000 (Abstract). Thus, the content of bound styrene (0-30%wt) of LMW polymer of **Yokoyama et al** is overlapping with that as claimed in the instant invention (5-80%wt); the Mw of the LMW polymer of **Yokoyama et al** (2,000-80,000) is overlapping with that as claimed in the instant invention (50,000-300,000). It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See In re Harris, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); In re Peterson, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); In re Malagari, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974). In light of the cited patent case law, it would therefore have been obvious that in this particular instance the overlapping of a) the ranges of styrene content and b) weight average molecular weight of the LMW polymer of **Yokoyama et al** and those claimed in the instant invention, establish a prima facie case of obviousness as well.

2) Though **Yokoyama et al** does not explicitly recite the ranges for vinyl bond content, however, **Yokoyama et al** provides the following relationship:

$S + (V/2) < 25$,

Wherein S is an amount of bound styrene (%wt) and V represents a vinyl linkage content (%wt) (col. 2, lines 15-23). As can be seen from the above formula, the lower the styrene content in the rubber, the higher the vinyl linkage content may be. For

example, at the content of bound styrene 10%wt (which is within the range of 5-80% of styrene, as claimed in the instant invention), the content of vinyl linkage may be up to 30%wt, which is also within the range of vinyl linkage 10-80%wt as claimed in the instant invention (based on the mathematical calculation according to the above formula).

3) Though the specific examples of **Yokoyama et al** show the polymers having Mw of $60x10^3$ and $90x10^3$, respectively, but having bound styrene content of 0%, i.e. polybutadienes, nevertheless, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. In re Lamberti 192 USPQ 278, 280 (CCPA 1976) citing In re Mills 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize an LMW styrene-butadiene copolymer having Mw of 2,000-80,000 as well given that **Yokoyama et al** teaches that as well (see Abstract).

9. Regarding the rejection of claims 3-16 under 35 U.S.C. 103(a) as being unpatentable over **Yokoyama et al** (US 5,959,039) in view of **Sasaka et al** (US 6,376,593), Applicant argues that **Sasaka et al** fails to disclose a LMW polymer comprising an aromatic vinyl compound and none of **Yokoyama et al** and **Sasaka et al** disclose a LMW polymer B) based on 100 pbm of rubber component (A) comprising at least one rubber of natural rubber and synthetic diene-based rubbers.

10. Examiner disagrees.

1) **Yokoyama et al** discloses a rubber composition and a tire comprising the composition wherein the composition comprises:

A) 100 pbw of a high molecular weight polymer comprising a styrene-butadiene rubber having a molecular weight of 300,000 or more (Abstract) and B) 30-120 pbw (col. 2, lines 25-28) of a low molecular weight polymer component, and further a natural rubber (col. 5, lines 52-54). Though **Yokoyama et al** does not specify the composition further comprising silica filler and softening agent, however, **Sasaka et al** discloses a rubber composition and a tire formed by using the composition, comprising 100 pbw of rubber component comprising: 5-50%wt of LMW butadiene rubber having molecular weight of 5,000-80,000 and 50-90%wt of styrene-butadiene rubber having bound styrene content of 15-45%wt and amount of vinyl bonding in the butadiene portion of 7-60%mol; and further 40-95 pbw of silica and process oils (Abstract, col. 6, lines 1-3), wherein the composition comprises excellent wet skid performance and ice skid performance (col. 6, lines 43-49). Thus, it would have been obvious to a skilled artisan to combine the teachings of **Yokoyama et al** and **Sasaka et al** to further improve wet skid performance and ice skid performance of the composition of **Yokoyama et al** as well.

2) Though **Sasaka et al** does not disclose LMW polymer comprising an aromatic vinyl compound, however, **Sasaka et al** is a secondary reference. Secondary reference does not need to teach all limitations. "It is not necessary to be able to bodily incorporate the secondary reference into the primary reference in order to make the combination." *In re Nievelt*, 179 USPQ 224 (CCPA 1973).

11. Regarding the rejection of claims 1-11, 13-16 under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744) and claims 4-12 under 35 U.S.C. 103(a) as being unpatentable over **Kawauzra et al** (US 5,679,744) in view of **Yokoyama et al** (US 5,959,039), Applicant argues that a) **Kawauzra et al** does not disclose a styrene-butadiene copolymer (C) having a weight average molecular weight of not less than 300,000 and b) according to the present invention, the high storage modulus (high G') and the low loss factor (low tan delta) can be established without damaging the operatibility of the rubber composition, which is not expected from the composition of **Kawauzra et al**.

12. Examiner disagrees.

1) In the specific Examples in Table V-2 ,

Kawauzra et al discloses a composition comprising:

A) styrene-butadiene rubber having styrene content of 41%wt, vinyl content of 37%mol and Mw of 320,000, which corresponds to component (C) of the instant invention (Ex. V-4, Table V-2);

B) a butadiene rubber, which corresponds to component (A) of the instant invention; and further

C) a styrene-butadiene block copolymer A-B, which corresponds to component (B) of the instant invention.

The block copolymer A-B comprises Mw of 50,000-800,000 (col. 6, lines 49-54), component A having styrene content 5-30%wt; vinyl content 5-40%; and component B having styrene content 5-30%wt and vinyl content at least 70%, wherein the ratio (A)/(B) is 20 to 80/80 to 20 (col. 5, lines 60-67; col. 6, lines 1-6). All ranges in the composition of **Kawauzra et al** are overlapping with corresponding ranges of the composition claimed in the instant invention. It is well settled that where the prior art describes the components of a claimed compound or compositions in concentrations within or overlapping the claimed concentrations a prima facie case of obviousness is established. See In re Harris, 409 F.3d 1339, 1343, 74 USPQ2d 1951, 1953 (Fed. Cir 2005); In re Peterson, 315 F.3d 1325, 1329, 65 USPQ 2d 1379, 1382 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578 16 USPQ2d 1934, 1936-37 (CCPA 1990); In re Malagari, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974). In light of the cited patent case law, it would therefore have been obvious that in this particular instance the overlapping of styrene content, vinyl content, ratio between components (A) and (B), weight average molecular weight establish a prima facie case of obviousness as well.

2) Regarding Applicant's argument that in the instant invention the high storage modulus (high G') and the low loss factor (low tan delta) can be established without damaging the operatibility of the rubber composition, it is noted that that instant claims do not recite any properties of the rubber composition, i.e. there is mentioning of high storage modulus (high G') or low loss factor (low tan delta).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina Krylova whose telephone number is (571)270-7349. The examiner can normally be reached on Monday-Friday 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Irina Krylova/
Examiner, Art Unit 1796

/Vasu Jagannathan/
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